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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/518,617  
Filing Date: December 05, 2005  
Appellant(s): DAVIS ET AL.

\_\_\_\_\_  
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For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 25 September 2008 and 21 October 2008 appealing from the Office action mailed 29 May 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the amendment to the brief filed 21 October 2008 is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

a. Whether claims 4, 7-10, and 12-16 are indefinite under 35 U.S.C. § 112.

#### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relied Upon**

6,720,290	England et al.	April 13, 2004
2002/0023752	Qu et al.	Feb. 28, 2002
6,143,709	Carey	Nov. 7 2000

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7, 12-13 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by England et al (US 6720290).

England et al teaches a foamed composition used to treat a gas containing well (column 1, lines 17-30), which can comprise a surfactant within the scope of the present invention (see claims and column 2, lines 35-50). A foam would reduce liquid loading as in claim 7. The whole purpose of using the foam is to increase productivity as in claims 12 and 13. England et al (column 7, example 2, lines 29-44) discloses the use of 2 gal/1000, which equates to 0.2 or 2000 ppm. Said values read on the claimed about 1000 ppm by volume of surfactant.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 7, 8, 12-14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qu et al (US PGPUB 2002/0023752).

Qu et al teaches a composition which can be used in gas wells (paragraph 0002), which can contain a zwitterionic surfactant within the scope of the present invention (0180). Foams are taught as being used at claims 22-24 and paragraph (0214). An alcohol is taught as being used as in claim 4 (see 0109 and 0207).

Qu et al differs in that in the structure I of paragraph 0180, a specific example of R6 being alkylene of 2 is not disclosed. Qu et al however teaches that R6 is preferably alkylene of 1 to 3, and discloses examples of R6 being 1.

It would thus be obvious to one of ordinary skill in the art at the time of the invention to utilize compounds of Qu et al having R6 as alkylene of 2, given the teaching of Qu et al that such are preferable, and the exemplification of R6 being alkylene of 1, since compounds with such similar structures would be expected to have similar properties and utility. A foam would be expected to reduce liquid loading (see at least claim 23, step (f)). The whole purpose of using the foam is to increase productivity as in claims 12 and 13.

Claims 9, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Qu et al (2002/0023752) or England et al (6720290), optionally in view of Carey (US 6143709).

Qu et al and England et al are taught above. Said citations and teaching are herein incorporated by reference.

Qu et al and England et al differ in not teaching the use of a capillary string for introduction of the foam and the concentration of about 1000 ppm by volume surfactant. It would however be obvious to one of ordinary skill in the art at the time of appellants' invention to utilize various known wellbore delivery means such as a capillary string, in order to achieve optimum pressure, delivery or placement of the fluid to the wellbore. The surfactants being the same as herein would be non-corrosive.

England et al (column 7, example 2, lines 29-44) discloses the use of 2 gal/1000, which equates to 0.2 or 2000 ppm.

Qu et al (¶ 184) discloses concentrations of zwitterionic surfactants including concentrations at 0.5%.

Merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality for a result-effective variable, *i.e.*, a variable which achieves a recognized result. Clearly the concentration of a foaming surfactant is a result-effective variable for foaming.

To the extent Qu et al and England et al do not explicitly disclose capillary strings, Carey (column 1, lines 30 et seq) discloses the conventional use of capillary strings to introduce materials down the well in unloading processes. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ capillary strings for the introduction of the materials taught in Qu et al and England et al for the advantages taught in Carey.

**(10) Response to Argument**

a. Claims 4, 7-10, and 12-16 are indefinite.

WITHDRAWN

b. Whether claims 7, 12-13, and 17 are anticipated by England et al. U.S. Pat. No. 6,720,290, under 35 U.S.C. § 102(e).

Appellants (pages 6 and 7 of Appeal Brief) assert an aqueous mixture is introduced into the well *during gas production* and the examiner has improperly characterized the limitation "during gas production". Appellants further assert the England et al reference is directed to fracturing methods rather than gas production. This has not been deemed persuasive for the following reasons:

(1) The fracturing of the formation in the England et al reference is part of the gas and liquid production process. Appellants' claims employ open language, "comprising", and do not exclude the fracturing of the formation.

(2) The England et al reference (column 3, lines 1-6) is directed to the same problem as addressed by Appellants, *i.e.*, enhanced dewatering or liquid loading and the production of gas.

(3) Appellants do not specifically define what is meant by the limitation "during gas production". Said limitation therefore takes the plain meaning in the art. This has been interpreted as any time during the production prior to completion of the well as dormant.

(4) Furthermore, Appellants (see page 1, line 18, to page 2, line 3, of the instant specification, DESCRIPTION OF THE PRIOR ART) acknowledge the conventional use of combined treatment methods when treating liquid loading.

(5) Appellants direct attention to the instant specification at pages 5 and 8. First, attention is directed to page 5, lines 9-17. Page 5 has 4 lines in total.

Second, attention is directed to page 8. The ASTM D-892 test at page 8, lines 10-13, is a simulated foaming test. This test does not limit or define "during gas production". Said test does not exclude any further steps the England et al reference.

In conclusion, a reasonable interpretation of the claims is that "during gas production" would be interpreted in light of the specification and by one having skill in the art as any time during the production prior to completion of the well as dormant. The England et al reference is reasonably interpreted as "during gas production".



c. Whether claims 4, 7, 8, 12-14, and 16-17 are obvious in view of Qu et al, U.S. Pat. App. Pub. No. 2002/0023752, under 35 U.S.C. § 103(a).

Appellants (pages 7 and 8 of Appeal Brief) assert an aqueous mixture is introduced into the well *during gas production*, the examiner has improperly characterized the limitation “during gas production”, and the Qu et al reference is directed to fracturing methods rather than gas production.

This has not been deemed persuasive for the reasons enumerated above, particularly that the fracturing of the formation in the Qu et al reference is part of the gas production process. Appellants’ claims employ open language, “comprising”, and do not exclude the fracturing of the formation. The remaining reasons will not all be reiterated here for brevity. Also, for the following additional reasons:

(7) The Qu et al reference (at least step (f) of claim 23) is directed to the same problem as addressed by Appellants, *i.e.*, reduction of water from the formation or liquid loading and the production of gas.

d. Whether claims 9, 10, and 15 are obvious in view of Qu, England and/or Carey, U.S. Pat. No. 6,143,709, under 35 U.S.C. § 103(a).

Appellants (page 8) assert claims 9, 10, and 15 depend from claim 7 and should be allowable for the reasons set forth for claim 7. This has not been deemed persuasive for the reasons addressed above.

Appellants further assert the Qu et al and the England et al references are directed to fracturing methods, there is no suggestion to introduce the fracturing fluids

through a capillary string, and fracturing typically involves very high pressures. This has not been deemed persuasive.

(1) Initially, all the references are directed to enhanced production and well stimulation and the use of capillary strings (tubes) are shown via Carey as conventional delivery means for additives including foaming additives to wells and formations. Furthermore, the references disclose enhanced dewatering or liquid loading and the production of gas (England et al, column 3, lines 1-6), reduction of water from the formation or liquid loading and the production of gas (Qu et al, at least step (f) of claim 23), and unloading liquids from wells, Carey, column 1, lines 6 et seq).

(2) Furthermore, Qu et al discloses (see at least paragraph [0313], [0314], [329] and [0330]) testing the rheology of the additives employing a reciprocating capillary viscometer and capillary tubes. Clearly Qu et al contemplates the use of capillary strings.

(3) Lastly and while the England et al reference is silent regarding the use of capillary strings, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ capillary strings for the introduction of the materials taught in Qu and England for the advantages taught in Carey.

### *Conclusion*

Appellants do not dispute the use of the claimed compounds as foaming agents in well treating. Appellants (DESCRIPTION OF THE PRIOR ART) admit the use of foaming agents in treating liquids loading. To the extent that one were to use Appellants overly narrow view of the limitation of "during gas production", the claimed

methods are at least obvious based on the combined references, which are all directed to liquid unloading, dewatering, and reduction of formation water. The introduction of a known additive (foaming agent) to address a known problem (liquid loading) where it may exist would have been at least obvious to one having ordinary skill at the time of the Appellants invention.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

***Conclusion***

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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